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ABSTRACT

This document contains three papers from a symposium on self-directed learning and self-management. "Validating a More-Dimensional Conception of Self-Directed Learning" (Gerald A. Straka, Cornelia Schaefer) discusses the development and validation of a conception of self-directed learning as a dynamic interplay between behavior, information, motivation and emotion under the experienced control of the learning person. "The Balance in Learning" (Hanneke Koopmans) reports on a study that examined how employees organize informal learning in the workplace in an effort to clarify the balance between the input of the employee and the input of relevant actors such as managers and colleagues. "Self-Management and Labor Market Outcomes" (Jasper B. van Loo) presents a theoretical and empirical exploration of the relationship between self-management and labor market outcomes and proposes that the relationship between self-management, training, and labor market outcomes be analyzed by using a framework that includes consideration of the following elements: background; training; self-management (initiative and responsibility); and labor market outcomes (wages, internal labor market potential, external labor market potential, and incidental monetary rewards). The framework is applied to data from a survey of 100 employees of a large firm in the Netherlands' financial services sector. All three papers include substantial bibliographies. (MN)

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Self Directed Learning and Self Management

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Validating a More-Dimensional Conception of Self-Directed Learning

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In theory and practice of human resource development self-directed learning is receiving increasing attention. An indicator is the large body of research in adult education and training. However, there are concerns linked with the theoretical underpinnings of the concept and the instrumentation of self-directed learning in this field. This was the reason to develop and validate a more-dimensional conception which defines self-directed learning as a process in which a person has contentual and procedural interests, is using learning (acquiring, sequencing, organizing) and control (concentration, monitoring, reflection, regulation) strategies, accompanied with emotions (joy, anger, boredom)

Keywords: Self-Directed Learning, Motivation and Emotion, Control Strategies

"Lean production", "re-engineering", "learning organization", and "knowledge management" occupy a large area in theory and practice of human resource development. These considerations have led to more competence being shifted back to the place where a piece of work is machined or a service provided. At the same time, they imply and indeed demand, though not explicitly, a continuing process of learning during the whole working life. In this context, self-directed learning is receiving growing importance as a complement to other forms of further and in-service training around the globe.

Problem Statement

In the meantime, a lot of research has been going on in the field of self-directed learning, especially in adult education. Indicators for that are: the 16th International Self-Directed Learning Symposium held in Boynton Beach, Florida/USA in 2002; the "6ème Colloque Européen sur l'Autoformation" (self-formation) held in Montpellier/France in 2001; and the Second World Conference on Self-Directed Learning which took place in Paris/France in 2000. In these arenas, Knowles' conception of self-directed learning, the Oddi Continuing Learning Inventory (OCLI) (Oddi 1984) and particularly the Self-Directed Learning Readiness Scale (SDLRS) (Guglielmino 1977) are widely used in business and industry.

Knowles defines self-directed learning "in its broadest meaning (...) as a process in which individuals take the initiative, with or without the help of others, in diagnosing their learning needs, formulating learning goals, identifying human and material resources for learning, choosing and implementing appropriate learning strategies, and evaluating learning outcomes" (Knowles 1975, 18). However, this view is not followed up by more extensive theoretical derivations or systematic descriptions of what 'initiative' means and of which activities, from establishing the need to learn up to evaluating the learning outcomes, may take place. Conceptual and empirical evaluations of the OCLI and the SDLRS raised concerns about (a) how self-direction was defined (Candy 1991), (b) the theoretical underpinnings of the concepts (i.e. weak relations to results of cognitive sciences, unidimensionality) (Brockett and Hiemstra 1991), and (c) the quality of the factor solutions (i.e. Straka 1996, Straka and Hinz 1996). This critique was the occasion to re-conceptualize self-directed learning to refer explicitly to validated concepts from the field of cognitive learning strategy research, to include different dimensions in the model, and to investigate the impact of selected perceived environmental conditions on this type of learning.

Theoretical Framework

During her/his lifetime, the individual interacts with her/his socio-culturally shaped environment. The individual enters this process with his/her *internal conditions*, like abilities, skills, and motives. From the perspective of the individual – the focus of this conception – the environment includes supervisors, colleagues, technical equipment, etc. subsumed under *environmental conditions*, and it is the individual's behavior which maintains this interaction made possible by her/his internal conditions (Gagné 1973). Examples for such activities are *viewing* a picture, *comprehending* a statement, *handling* a workpiece. With words such as "viewing", "comprehending", "handling" we are – albeit vaguely – describing *behavior*. In this context behavior is directed at something: a picture, statement, work

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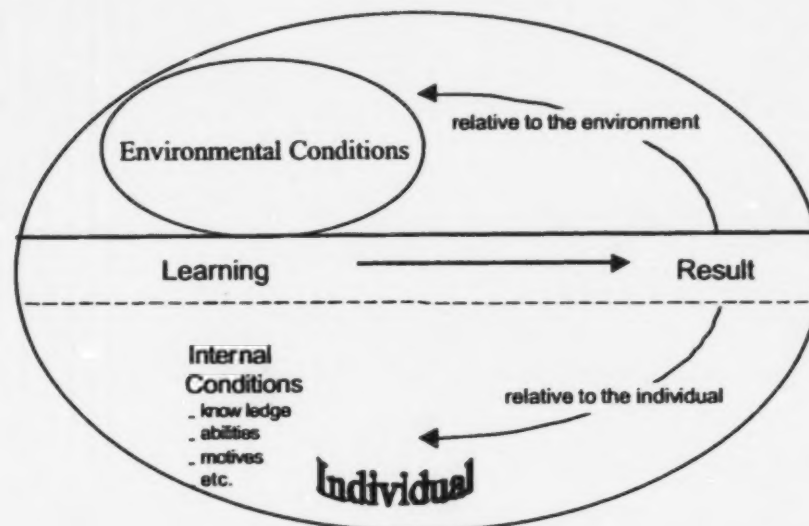
piece. From a cognitive perspective this something means *information* generated by the individual's (cognitive) behavior on the basis of her/his internal conditions and/or perceived signs or symbols from the environment.

When asked why an individual realizes, maintains, discontinues or avoids behavior in a particular way or which reasons are behind the behavior (conscious or unconscious), then we are dealing with the motivation side of the individual-environment relation. *Motivation* embraces that dimension which relates behavior to something (e.g. content), which aligns it (turning to or turning away) which associates a certain strength and intensity. There is still another dimension being part of the interaction. It is the *emotion* embracing the subjective experience from an affective and non-rational angle, which can be pleasant or unpleasant, connected with impressions such as joy or anger, or to physical processes such as sweating, shuddering or accompanied by expressional behavior such as facial expressions or gestures (Pekrun and Schiefele 1996, Bockhaerts 1999).

All four dimensions presuppose and necessitate each other. They do not exist separately by themselves, but instead only come into being through mutual action, that is to say they generate each other, which however does not mean that in different phases during the course of an event, one or other of the dimensions can be at the forefront (Becker, Oldenburger and Piehl 1987). Example: A person is so irritated that she retains nothing when reading a text she considers very important and interesting. After a while her irritation subsides and she reads the text attentively; she compares what she has read with what she already knows, sees here and there additions to her previous knowledge and is pleased at having learnt something new. This does not surprise her, however, for she knows that she easily understands and retains things that interest her.

The individuals interaction with socio-culturally shaped environmental conditions result in consequences relating to the environment and/or the individual (cf. Fig. 1):

Figure 1. Learning



Environment-relative consequences arise for example out of the handling a workpiece or the giving potential information. *Individual-relative consequences* exist in the fact that her/his knowledge, her/his abilities etc. are permanently changed and therefore learning has taken place. Accordingly, *learning* has taken place when, and only when the *individual-relative consequences* of the interaction between behavior, information, motivation and emotion lead to a *permanent change in the internal conditions* of the acting individual.

A More-Dimensional Conception of Self-Directed-Learning

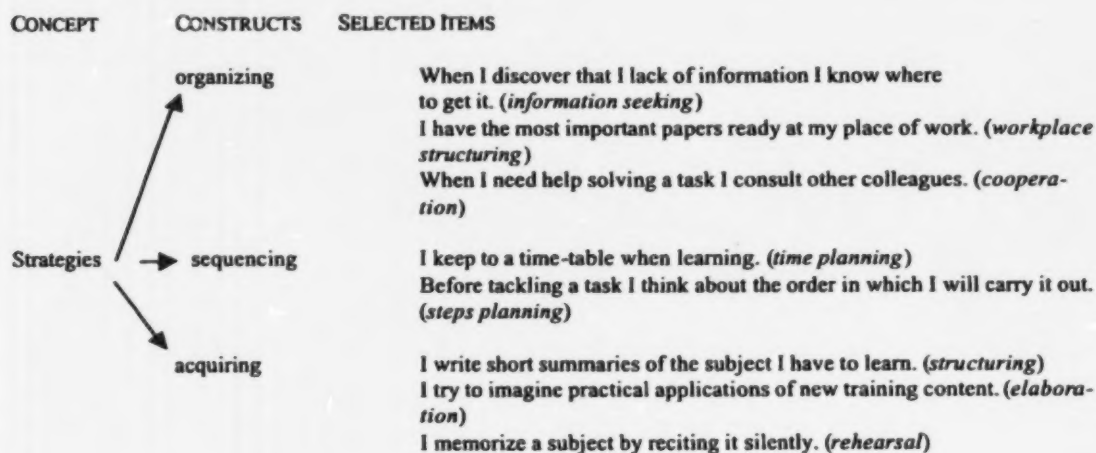
According to these considerations self-directed learning is a dynamic interplay between behavior, information, motivation and emotion under the experienced control of the learning person. Referring to cognitive theory the dimen-

sion "behavior" is differentiated into "learning" and "control strategies". The dimension "motivation" is modeled with the concept of "interest" (Krapp, 1999) and the dimension "emotion" subsumes specific types of emotions taking place during learning (Pekrun 1992). The differentiation of the dimensions "behavior", "motivation" and "emotion" into concepts, constructs and their operationalizations by the instrument used, will be given in the following paragraphs, referring to especially theoretical conceptualizations like those of Boekaerts (1999), Pintrich et al. (1991), Weinstein and Mayer (1986), and Zimmerman (2000).

Learning Strategies

When interacting with the environment, the following activities may be differentiated: the learner *structures* the generated information; s/he establishes similarities and differences between that which s/he already knows and that which s/he would like to learn (*elaboration*). If necessary, s/he will *repeat* in order to safeguard the permanence of what has been learned. Structuring, elaborating and rehearsal is learning behavior with which a person is *acquiring* that which is to be learned.

Figure 2. Constructs of the concept "learning strategies"



With self-directed learning, those activities which may occur before acquisition, are given a higher status. The learner is *sequencing* by *planning* her/his *steps* and *time* s/he would like to acquire that which is to be learned. Furthermore, s/he has to *seek information* needed for learning; whether the learner would like to *cooperate* with colleagues, as well as how s/he *structures* her/his place of work in a way that it promotes learning. Acquiring, sequencing and organizing are components or constructs of the concept *learning strategies*.

Control Strategies

These activities, subsumed to learning strategies are controlled either cognitively or metacognitively. *Concentration, monitoring, reflection and regulation* are in this context subsumed under the concept *control strategies*

Figure 3. Constructs of the concept "control"

CONCEPT	CONSTRUCTS	SELECTED ITEMS
Control	cognitive	When I am learning I do not allow myself to become distracted. (<i>concentration</i>)
	meta-cognitive	When I solve a task I check from time to time whether I have understood it correctly. (<i>monitoring</i>) I sometimes interrupt my learning in order to consider what I have so far achieved. (<i>reflection</i>) When I have to carry out a complex task I adapt my way of learning. (<i>regulation</i>)

Interests

The motivational dimension is focused on the concept of "interest", differentiated between contentual and procedural interest (Krapp 1999). The *contentual interest* is a combination of the value a person attaches to the content and the expectancy of being able to enter into a meaningful relationship with this content. As far as *procedural interest* is concerned, the individual value-expectancy-assessment refers to much the same thing regarding the above mentioned learning and control strategies.

Figure 4. Constructs of the concept "interest"

CONCEPT	CONSTRUCTS	SELECTED ITEMS
Interest	contentual	I consider it important to know the principles of EXCEL databanks (<i>value</i>), and I feel confident of my skills to do so. (<i>expectancy</i>)
	procedural	I consider it important to ask colleagues for information when necessary. (<i>value</i>) I find it easy to ask colleagues for information when necessary. (<i>expectancy</i>)

Emotions

In order to define the emotional dimension of the individual-environment-relationship, we will refer to the concept of the general *learning emotions* (Pekrun 1992, 1998), which embraces those emotions often found in learning situations like *joy*, *anger* and *boredom*

Figure 5. Constructs of the concept „emotions“

CONCEPT	CONSTRUCTS	SELECTED ITEMS
Emotions	joy	I enjoy working on exercise tasks.
	anger	I am getting angry when I have to learn by using my computer at work.
	boredom	I find carrying out exercise tasks boring.

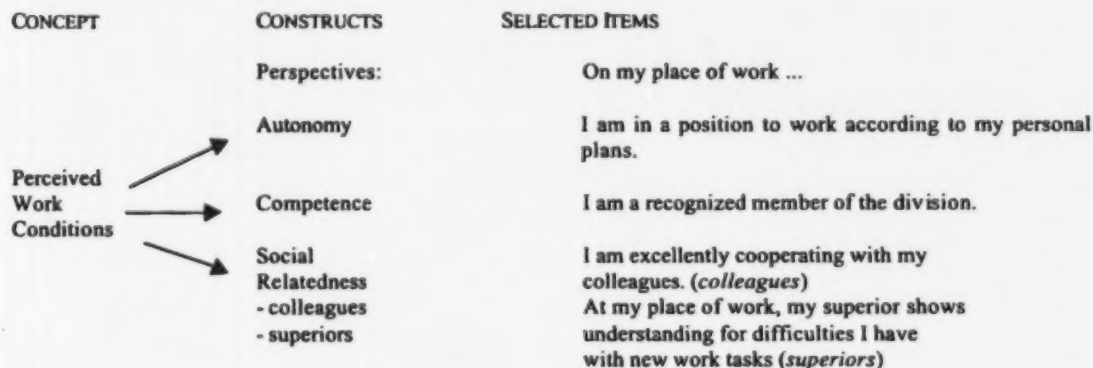
Perspectives Perceiving Environmental Conditions

Learning is on the one side, when all is said and done, the individual's business. However, on the other side it is embedded in environmental conditions. They are perceived by the individual according to his/her internal conditions which determine the aspects and ways of reconstructing and constructing the environmental conditions. According to Deci and Ryan, the experience of competence, autonomy and social relatedness are important conditions of self-determination (Deci and Ryan 1985, 1991, Straka 1997). The assumption is that these three types of experiences also contribute to self-direction in learning.

Related to the environmental conditions of the workplace, the three concepts are defined as follows:

- *Experiencing autonomy* at the place of work is when a person has the impression s/he has scope, that is to say that s/he is able to carry out her/his work tasks according to her/his own schedules.
- *Experiencing competence* at the place of work is when a person has the impression s/he carries out her/his work tasks competently as well as successfully and when s/he feels her/himself to be effective.
- *Experiencing social relatedness* at the place of work is felt by a person when her/his tasks are acknowledged by superiors and colleagues and s/he feels integrated in the works community.

Figure 6. Constructs of the concept "perceived workplace conditions"



Research Questions

On the basis of these conceptual considerations and the postulated more-dimensionality of self-directed learning, the following questions are to be investigated:

1. Are there interrelations between emotions, interests, learning and control strategies?
2. Are there impacts of the workplace conditions, perceived under the perspectives of autonomy, competence and social relatedness, via the dimensions of interests and emotions on the learning and control strategies?

Methodology

To collect the necessary data the Motivated Self-Directed Learning in Business (MOSLIB) self-rating questionnaire was used. This modularized instrument consists of the concepts and constructs mentioned in the preceding paragraphs (Straka et al. 1996). It was validated in different settings in business and industry with principal components factor analyses and varimax rotations. Only items with single structure and a loading >0.40 are included in the instrument (cf. Nenniger et al. 1998).

The sample of the survey included 295 employees from a business administrative field of different small and medium sized enterprises in the Bremen area, of whom 20% had a lower and 34% an average secondary school education and 46% a grammar-school education and above. 26% were female and 41% under 40 year of age. Availability and readiness to take part in the study were the criteria of "selection".

In order to get answers to the questions stated, structural models were validated with LISREL8. The input data were the correlation-matrices for the constructs of the structural models calculated on the basis of the factor-scores.

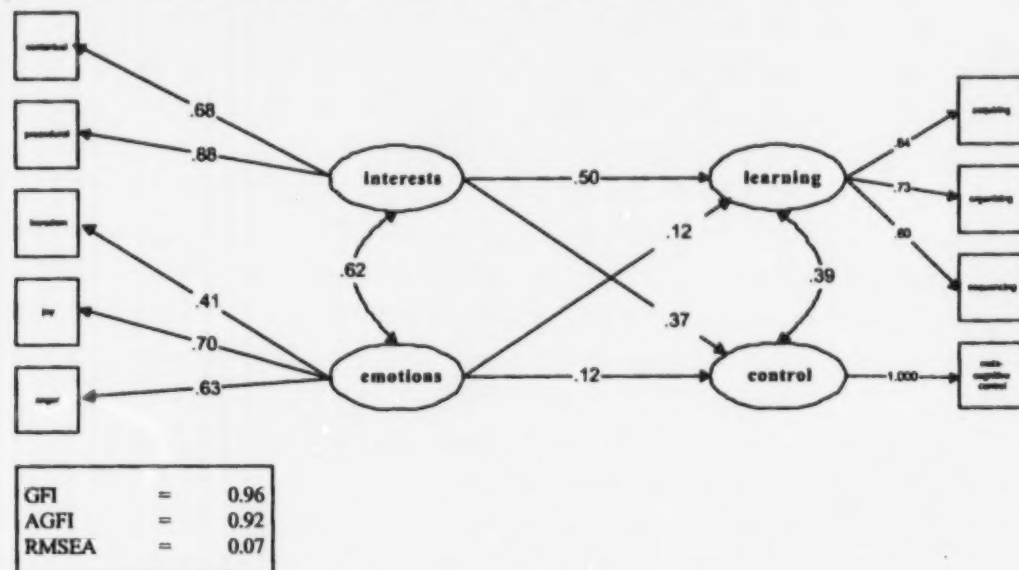
Results and Findings

The results of the LISREL-analyses according to the questions focusing on the more-dimensionality of self-directed learning and the impact of perceived aspects of the work condition will now be presented.

The More-Dimensionality Self-Directed Learning

The more-dimensionality of self-directed learning was investigated for the assumed relations between the concepts interests, emotions, strategies (cf. research question 1). It could be validated with the following structural model:

Figure 7. Relations between interests, emotions, learning and control strategies



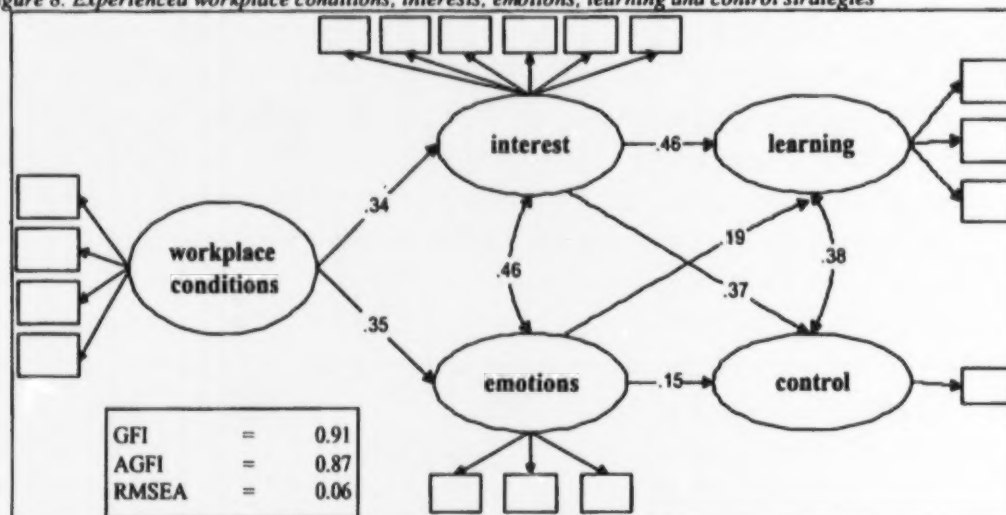
A relatively strong correlation between interests and emotions (.62) and a smaller one between strategies and control (.39) could be established. The relation between interests and emotions is in congruence with the Munich interest concept (Krapp 1999) which encompasses the aspects emotion, value, subject-relatedness. There is a fairly strong standardized path-coefficient from interests to strategies (.50) and a smaller one to control (.37). The impact of emotions on strategies (.12) and control (.12) is minor and supporting the cognitive view of this conception of self-directed learning. The correlation between control and learning strategies (.39) expresses interrelation of these concepts. In sum the model fits and the relations between these four concepts give a differentiated answer to research question one.

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Impacts of Perceived Workplace Conditions on Selected Dimensions of Self-Directed Learning

The impact between perceived workplace conditions via interest and emotion on learning and control strategies, postulated with research question two, could be reconstructed with the following linear model:

Figure 8. Experienced workplace conditions, interests, emotions, learning and control strategies



There are paths from workplace conditions, perceived under the perspectives of autonomy, competence and social relatedness to colleagues and superiors, to interests (.34) and emotions (.35). Experienced workplace conditions explain a little more than 11 % (e.g. $0.34^2=0.116$) of the variance of emotions and of interests as well. It should be further noted that the inclusion of this concept of experienced workplace conditions has only a minor impact on the structure of the first model (cf. Fig. 7), which is a strong indicator for the stability of the postulated more-dimensionality of self-directed learning.

Conclusions, Recommendations

Based on the concepts and constructs introduced, their structural modeling and the empirical validation, *self-directed learning* will take place, if a person has contentual and procedural interests (dimension motivation), s/he is using learning (organizing, sequencing, acquiring) and control strategies (meta-cognitive) – both parts of the dimension behavior –, and s/he is driven by joy and not by anger or boredom (dimension emotion). The interrelations between these concepts may give persons in charge of human resource development some hints for interventions. First they may focus on the interrelated learning and control strategies by realizing explicit and implicit interventions. Explicit interventions include methods focusing on learning and control strategies. However, the application of them is up to responsibility of the person her/himself. Implicit interventions are focusing on the self-organized acquisition domain specific declarative and procedural knowledge with the assumption that by doing this, the person will acquire learning and control strategies simultaneously. Between these two poles, the “starting with guided reflection on one’s own working and learning on the shop floor” may be an alternative (Cseh, Watkins & Marsick 2000).

A second point for intervention might be the interests from which strong paths go to learning and control strategies. According to the conceptualization of interests as a combinations of value and expectancy calculations human resource development people have to demonstrate persons the work-importance of the information and strategies to be acquired. The expectancy aspect could be supported in figuring out that the employee already mastered similar demands in her/his work biography.

The third angle for intervention consists of the arrangement of workplace conditions with high learning potentials. An important one might be the feedbacks used by colleagues and superiors in order to confirm continuously the competence of the employee.

How this Research Contributes to the New Knowledge in HRD

In research and especially in practice, self-direction in learning is focusing more on the "what" and far less on "how" to learn the "what". Referring to research findings from neighboring disciplines a more-dimensional model of self-directed learning was developed, validated and some ways perceiving workplace conditions supporting this type of learning have been identified. The findings demonstrate that learning new things in a self-directed manner requires a certain repertoire of learning and control strategies and interests, i.e. the main result is, that the often neglected "how"-question is equally important as the "what"-question, and that aspects of perceived workplace conditions have a distinct impact on some dimensions of self-directed learning.

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The Balance in Learning

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This study examines the way informal learning is organised at the workplace by employees. The balance between the input of the employee and the input of relevant actors, such as manager or colleagues will be clarified. Besides this balance this research also looks at the opinions on this balance of the organised learning, in order to clarify what employees consider optimal organisation of the learning. This research is a starting point for stimulating the organisation of informal learning at the workplace by employees.

Key-words: Self-organised Learning, Workplace Learning, Informal Learning.

Life long learning has received increased attention in the last few years. The continuous development of employees has become more and more important for organisations. The continuous learning of employees offer organisations an advantage in dealing with changes. Continuous learning is therefor one of the goals of the learning organisation (Drucker, 1995). Organisational learning takes place when employees generate their own knowledge in a reaction on the organisation and the environment (Baets, 2000). Organisations want their employees to be able to deal with the change that an organisation is confronted with.

The learning support for employees is usually organised by professionals, who organise a learning program. During the design of the program, different actors are more or less consulted about their ideas; but the responsibility of the program usually lies with the professional.

Most of these programs are aiming for the transfer of knowledge. Since the value of a program is the use of the learned knowledge at the workplace. This transfer is problematic and doesn't always take place. In American industries \$100 billion is spend on training; according to a review on transfer of training. Actual 10%, of this \$100 billion results in transfer to the job (Baldwin & Ford, 1988). In the Netherlands also 10% of learning in a program results in transfer on the job; according to an overview on learning within organisations in the Netherlands (Van der Zee, 1995).

It seems the learning programs don't offer the results we want. Informal learning and learning at the workplace are strong alternatives. They will be discussed in more detail later.

Baldwin and Ford are using a model for transfer. This model clarifies that the following elements influence transfer in a direct or indirect way:

- Trainee characteristics: ability, personality and motivation influence transfer in a direct and indirect way.
- Training design: principles of learning, sequencing and training content influence transfer in an indirect way.
- Work environment: support and opportunity to use influence transfer in a direct and indirect way.

The indirect way is via learning and retention to transfer. Trainee characteristics and work environment both influences transfer in a direct way. Whereas training design only influence transfer via learning and retention. Although the research is on transfer of training; the above findings can be integrated to aim at better results from informal learning.

We now look at the different elements that influence transfer. Although we take the three elements into account, we make certain choices. First of all the employee is the starting point of this research, the individual is the central focus. This means that we look upon informal learning from an individual perspective. We deal with training design in a more nuanced way. Since informal learning is the subject and not the more formal way of learning, we can't speak about the design of training. In this research the influence of the informal learning will be based on environmental elements. Where training design is more about moulding this environment.

Now starting to discuss the different elements of transfer, I begin with employees.

The programs are being designed for employees, for adults. These adults are hardly consulted during the design of the program. When it comes to creating a program the general assumption seems to be that an employee does not have many ideas about learning. This is inconsistent with the knowledge we have on adults as learners. Knowles identified the following characteristics of adults as learners (Lieb, 2001):

- Adults are autonomous and self-directed.
- Adults have accumulated a foundation of life experiences and knowledge.
- Adults are goal oriented.
- Adults are relevancy oriented.

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- Adults are practical, focusing on the aspects of a lesson most useful to them in their work.
- As do all learners, adults need to be shown respect.

The above characteristics offer guidelines for the design of learning for employees. Adults want their learning to be relevant for their work. They want it to be useful for their work. Adults are able to define goals and to direct their learning. It seems that adults know quite well what they want to learn, it must be relevant, with a practical focus. They are also able to direct themselves in learning.

Yet despite this knowledge most programs are not designed according to the above characteristics. In most programs professionals decide about the goals, the activities the organisation and the evaluation.

Besides the characteristics of the employee there is a second issue concerning transfer, which is the work environment. When the work environment influences transfer of learning; learning at the workplace seems a good option.

In a research about effectiveness of learning at the workplace a few reasons were given for the increased attention for this form of learning (Van der Klink, 1999). There are three reasons;

- Better transfer, since the learning situation is identical to the work situation.
- Cost reduction, learning is organised at the workplace, no costs for travelling, to stay over, and no complete cut off from the production process, and
- Flexibility, work place learning can be organised any time when needed by the learner.

Most learning at the workplace is informally. Callahan, Watkins and Marsick estimate that 60-80% of learning in today's workplace occurs informally. In this research we look at informal learning at the workplace.

The last element that influences transfer is the design of the training. In this research we look at informal learning at the workplace; so there isn't a real design possible.

In this research we connect as closely as possible with adults learning at the workplace to enhance and stimulate learning. The focus of this research is on the organisation of the learning at the workplace by employees and the influence of relevant other actors concerning this organisation of learning.

The term organisation of the learning is mentioned here. This term is used, since design of the learning usually implies a certain order in steps to take, beginning with the definition of a learning goal. Most learning at the workplace is informal and not ordered. Therefore we use the term organisation of the learning.

Main question is: How do employees organise their learning and what is the influence of relevant actors upon this organisation?

Theoretical framework and previous research

This research fits within a framework of literature on; informal learning and learning at the workplace, transfer and selforganised learning. The organisation of the learning at the workplace will be analysed by the steps that are made in the design of a program. First we start with the constructivist learning theory in order to clarify the view upon learning.

Constructivist learning

In this research we take a social constructivist view upon learning. The constructivist approach can be defined as followed (Duffy & Jonassen, 1992):

"There are many ways to structure the world, and there are many meanings or perspectives for any event or concept. Thus there is not a correct meaning that we are striving for". Kessels (2000) sees learning, from a constructivist point of view, as building up experiences.

There are many different views within constructivism. Moshman (1982) gives a comparison of these different views. He distinguishes different types of constructivism: exogenous, dialectic and endogenous. If you draw a line of constructivism, both exogenous and endogenous are two opposite ends of the same line.

Exogenous ----- Endogenous

Exogenous constructivism sees knowledge as external to the individual. Knowledge is internalised and reconstructed from external reality.

Endogenous constructivism sees knowledge as constructed by mental structures. So knowledge is reconstructed from internal reality. This form of constructivism is associated with Piaget and his theory of cognitive development.

Exogenous constructivism lays too much emphasis on the external environment and endogenous constructivism lays too much emphasis on the internal environment.

Dialectic constructivism sees knowledge as the result of an interaction between the learner (internal environment) and the external environment. In this research the focus is on the employee as a learner at the workplace. He or she organises his or her own learning. During the process other actors will help him or her with this organisation. It is an interaction between the learner and the other actors, the environment. So both the internal environment, the learner, as the external environment, the actors, are relevant for this research. Dialectic or social constructivism therefore fits this research best. Like Palinscar (1999) says: 'Social constructivist perspectives focus on the interdependence of social and individual processes in the co-construction of knowledge'.

Learning at the Workplace and Informal Learning

Hereby follows an overview of literature on learning at the workplace and informal learning in order to clarify the place of this research.

The following description offers the view within this research upon learning at the workplace (Onstenk, 2001): "Learning at the workplace is experience based learning, an active, constructive and largely self directed process, that occurs in real professional situation as a learning environment with real problems coming from professional practice as a learning object".

In general learning at the workplace seems to be more unplanned, unstructured and not regulated (Onstenk, 2001). Within these forms of informal learning Onstenk gives an overview; based on a dissertation literature review of different kinds of learning at the workplace (1997).

He divides four clusters of approaches in learning at the workplace:

- Immanent and expansive learning, learning directly integrated with work.
- Situated learning, learning in and from a physical, symbolic and social work environment.
- Independent learning, self regulated and intentional learning at the workplace, and
- Job and professional socialisation, learning as job socialisation.

Informal and incidental learning is defined in contrast with formal learning by Marsick and Watkins (1990) as: 'Formal learning is typically institutionally sponsored, classroom-based or highly structured. Informal learning, a category that includes incidental learning, may occur in institutions, but it is not typically classroom-based or highly structured, and control of the learning rests primarily in the hands of the learner. Incidental learning, a subcategory of informal learning, is defined by Watkins as a by-product of some other activity, such as task accomplishment, interpersonal interaction, sensing the organisational culture, trial-and-error experimentation, or even formal learning. Informal learning can be deliberately encouraged by an organisation or it can take place despite an environment not highly conducive to learning. Incidental learning, on the other hand, almost always takes place in everyday experience although people are not always conscious of it'.

Marsick and Watkins are looking at the individual learning in an organisation where learning and change is taking place.

The following themes of informal learning are being summarised by Marsick and Volpe; based on a dissertation literature view by Cseh (In: Marsick, 2001):

- Integrated with work and daily routines.
- Triggered by an internal and external jolt.
- Not highly conscious.
- Often haphazard and influenced by chance.
- An inductive process of reflection and action, and
- Linked to the learning of others.

Onstenk describes learning at the workplace in terms of active behaviour. This behaviour is placed within the organisation as an environment. He characterises the environment with elements relevant for the learning; real problems coming from professional practice. In the end of his definition he characterises the learning; 'it is unplanned, unstructured and not regulated' (Onstenk, 2001).

Marsick and Watkins define informal learning in contrast with formal learning. The explanation of incidental learning clarifies what it is that people do; 'task accomplishment, interpersonal interaction, sensing the organisational culture, trial-and-error experimentation, or even formal learning' (1990).

It seems that Onstenk is also describing incidental learning; while he is using the term workplace learning. In this research we try to find out what individuals do when they learn incidentally. We prefer the definition on Onstenk on workplace learning. But in this research we use the term informal learning; since it is the aim of this research to deliberately encourage this form of learning.

Now follows a further explanation on the different clusters that Onstenk (1997) divided.

The first cluster immanent and expansive learning, is learning directly integrated with work. Main characteristic of this form of learning is that it is closely related to problems that occur during work. There is a relation between development of competencies and the design of future work in all researches within this cluster.

The next cluster focuses on situated learning, learning from work environment, either a physical, symbolic or social work environment. There is a lot of attention for the social organisation of the learning process in different situations related to practice. The main characteristic of this research is the attention to practical or academic skills.

The cluster on independent learning is about self directed and intentional learning. Central to this approach is the focus on the independent forms of learning, with an accent on the learner. Within learning at the workplace, there is a lot of attention on the informal ways of learning. It is more intentional, autonomous, spontaneous, and self directed by the learner.

The last cluster described by Onstenk is about job socialisation and professional socialisation, with a view on learning as job socialisation. The workplace is a social environment where culture plays a role. Learning is seen as 'educating at the workplace'. This form of learning is about internalising culture, values and beliefs of a profession and the organisation of the professional group.

This research focuses on situated learning and independent learning. These aspects touch on two characteristics of learning that are important in this research, namely that the learning is situated and that learning is self-organised. The constructivistic view upon learning coheres with the above points. From the themes that are mentioned by Marsick and Volpe; based on the dissertation literature review by Cseh; the following are relevant for this research (In: Marsick, 2001):

- Integrated with work and daily routines.
- Triggered by an internal and external jolt.
- An inductive process of reflection and action, and
- Linked to the learning of others.

Transfer

The transfer of knowledge or experiences from one moment to another, the reusability of the knowledge or the experience, makes it valuable. Based on the constructivist theory we acknowledge that knowledge is recreated over and over again by individuals. Therefore we can't speak of exact or objective knowledge; we talk about subjective knowledge. Individuals give meaning and value to knowledge.

Baldwin and Ford, in a review study on transfer of training, define that transfer has occurred when 'learned behaviour is generalised to the job context and maintained over a period of time on the job' (1988). They include two conditions of transfer:

1. generalisation of material learned in training to the job context
2. maintenance of the learned material over a period of time on the job

The model that they used, as explained earlier in this paper, was based on three elements:

- Trainee characteristics: ability, personality and motivation influence transfer in a direct and indirect way.
- Training design: principles of learning, sequencing and training content influence transfer in an indirect way.
- Work environment: support and opportunity to use influence transfer in a direct and indirect way.

The indirect way is via learning and retention to transfer. Trainee characteristics and work environment both influence transfer in a direct way. Whereas training design only influence transfer via learning and retention.

Selforganisation of Learning

There is very little literature on learning that focuses on self-organisation by the learner. In an attempt to define self-organisation of the learning and the different activities concerning self-organisation of the learning we look at literature on self-directed, self-regulated learning and the design of a learning trajectory.

Self-directed learning is about educating and teaching oneself. There is a focus on the initiative of the learner and the learning goals he or she makes explicit. In an overview by Onstenk (1997) research on self-directed learning is described as concentrating on the interaction between the learning individual and the organisation. Employees need to have specific learning projects and learning strategies.

Self-regulated learning has its background in psychology. Zimmerman (1989) describes self-regulated learning in general as follows:

"Students can be described as being self-regulated in the way they are metacognitively, motivationally and behaviourally active participants of their own learning process".

The definition of self-regulated learning from Simons (1993), within constructivist learning comes closer to the view upon self-regulated learning within this research:

"the learner is able to prepare the learning themselves, make the necessary steps within the learning, regulate the learning, take care of feedback and criticisms and make sure that concentration and motivation stay in tact".

A difference between the definition of Zimmerman (1989) and Simons (1993) is that Zimmerman (1989) describes self-regulation mainly in terms of internal processes. Where Simons (1993) describes self-regulated learning mainly as different activities performed by the learner. This last definition is more in line with this research. Since the focus is on the organisation of the learner, as in activities performed by the learner. These activities can be compared with the activities that professionals take in the design of a learning trajectory.

Visscher-Voerman (2000) in an overview of this design process, explains that every approach has four core activities:

1. Analysis
2. Design and Development
3. Evaluation
4. Implementation

We compare the following elements of the definition by Simons with the core activities described by Visscher-Voerman. The preparation of the learning can be compared with the analysis of the problem. Preparation of the learning can start with an analysis, either an analysis of a problem or something else related to work. It is also possible that it is not an analysis but an activity or something else. Since the starting point of this research is informal learning, it is possible that the learning is not prepared at all.

Making steps in the learning and regulating the learning can be compared with design and development. To decide at a certain moment of time how to proceed with the learning or any to be taken steps can be seen as design of the learning. Where the improvement of changes within these planned steps can be seen as development of the learning. Receiving feedback and criticisms can be compared with the evaluation phase.

Learning is seen as organised by an employee when he or she:

- prepares the learning
- regulates the learning
- evaluates the learning

Simons states in his explanation of self-regulated learning that the five elements, named in his definition, can be taken care of by a second person. During a learning process there is usually a second person involved. In school settings this is the teacher, but it can also be a book. A book can be seen as a representation of a 'second' person. In this research we try to find the second person in the process and in the three, different elements. We call these 'second' persons actors, actors relevant for the learning of employees. This can be manager, colleagues or even customers.

In this research there is a search for the organisation of the learning at the workplace by the learner. This might be an unconscious organisation that the learner is unaware of during the learning. We try to find a structure, or elements of a structure, within this learning. Thereby the relevant actors concerning ones learning will be discovered and involved in this research. With the different elements as a guide the input of the learner and the input of the other actors the organisation of the learning will be analysed as well as their opinion on this organisation. This is in search of the balance in learning. Where does the input of the learner end and the input of the actor start?

Methodology and Research Design

This is exploratory research in the field of informal learning or learning at the workplace. Exploratory in the sense that the aim of this research is to find a structure in which we can place the organisation of learning by employees. Based on this structure an analysis is made of the involvement of the learner and the involvement of the other actors in the organisation of the learning. The main question is how self-directed learning is organised and where the balance is between the direction given by the learner and the other actor.

The next step in the future of this research will be to discover and implement different ways of organising learning at the workplace by directing and supporting learners and relevant actors to certain elements of the organisation of the learning.

We take an interpretative view upon research opposite to the positivistic view. The positivistic view states that there is one true knowledge, that this knowledge is 'hard' and can be transferred to everyone else. The interpretative view states that knowledge is connected to persons and is interpreted by persons, therefore there does not exist one true objective knowledge. Consequences for this research are that we will gather my data by asking people their perceptions on certain issues.

Since it is the learning of employees that is going to be intensified, the choice was made to start with their input. The results of the interviews will be compared with literature on this subject. But the starting point was perceptions of individuals on their own learning.

This starting point was taken for a couple of reasons:

- The interpretative view on learning, that defines knowledge as being subjected and connected to the individual.
- The constructivist theory that defines learning as recreation of knowledge over and over again, influenced by the environment and interaction with others.
- Individuals taken as a central starting point in this research, and letting them define what elements play a role, and
- The characteristic of what was researched, the way individuals organised their learning, which is closely connected to the individual and therefore could be different per person.

Based on the interpretative view upon the acquirement of knowledge and the characteristics of what knowledge is, combined with the constructivist theory, the way to research this form of learning is by interviews.

This research follows the principles and methods of development research. Development research is used a lot for design problems. This research can also be seen as a design problem. The aims of development research are (Van den Akker, 1999):

- a. Providing ideas (suggestions, directions) for optimising quality of the intervention to be developed.
- b. Generating, articulating and testing design principles.

To get an idea about the learning that occurs and the elements in the organisation of the learning we will interview professionals in different contexts. Professionals here are defined as: employees with complex tasks within their work. We choose professionals for two reasons. Their job is rich enough for the occurrence of learning. And because these professionals have some freedom in their work to organise their work and therefore probably more freedom to organise their learning as well. So the learning potential of these professionals is high.

In order of the future work of this research, the implementation of different ways of organising learning at the workplace by employees, will be looked upon by the following existing structures within organisations:

- POP, personal development plan
- Coaching trajectories
- Innovation and improvement trajectories

These starting points are chosen because they all give rich opportunities to learn. These are formats already existing in organisations with the possibility that the learner can organise his or her own learning.

A personal development plan is a plan in which the employee can explain what he or she wants to develop.

A lot of employees use coaches to help them with different aspects they are dealing with at work. This as well is a format with rich possibilities.

Innovation trajectories are new developments in organisation. This can be the development of a new product as well as an organisation going to the stock exchange.

These trajectories are trajectories where a lot of people usually have to learn new things, which they partly organise themselves.

Improvement trajectory is a trajectory where products or services can be improved. For example an IT department has to improve itself constantly. Since the development within this field takes place in a fast way, the employees are learning constantly.

There will be three cases developed. For each format three professionals will be approached. There will take a semi-structured interview place. Based on this interview other actors will be revealed and interviewed as well about the same incident.

The interview will take place according to the critical incident technique. This technique is "an appropriate tool that can be used to analyse jobs in the social context in which they occur" (Stitt-Gohdes, Lambrecht & Redmann, 2000).

After analysing the first interviews a list of steps or elements in the organisation of the learning is being made and the perception on the input from the learner and other actors on the organisation has become clear.

To avoid uncertainty in the interpretation of the data a questionnaire will be sent to the interviewees with questions based on the outcomes of the interviews. With the intention to check whether same outcomes are received.

How This Research Contributes to New Knowledge in HRD

This research will contribute to knowledge on how employees organise their learning and what preferences they have in informal learning. Based on the outcomes informal learning in organisations can be intensified according to the preferences of employees.

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Self-Management and Labor Market Outcomes

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In this paper, the relation between self-management and labor market outcomes is addressed. Insights from both the current debate on employability and the economic training literature suggest that training and self-management are important factors for labor market success. The goal of this paper is to theoretically and empirically address this issue. A framework for analyzing the relation between self-management, training and labor market outcomes is presented and applied to survey data.

Keywords: Self-Management, Labor Market, Empirical Analysis

The changes in the relationship between workers and firms regarding careers have had important implications for both HRD theory and practice. The emergence of new psychological contracts have resulted in a shift from the traditional organizational career to what has been termed the 'protean career' (Hall and Moss, 1998), which is a career that individuals, not organizations are managing. The need for the new relation between workers and firms has been created by various developments taking place in modern societies: technological innovations, organizational developments, quality management and increased competition (Bishop, 1997; Collin, 1994; Watkins and Marsick, 1993; Stasz, 1998).

In the resulting employability debate, the need for individual worker flexibility is often stressed. It is assumed that workers that are more employable will be more successful in terms of labor market outcomes than their less employable colleagues. In the training literature, which is mainly inspired by the economic benefits of training, the need for continuing updating of skills is the main issue. Here, the determinants and effects from training participation have been extensively addressed and training participation is usually related to individual and work characteristics (see e.g. Blundell et al., 1996). Some of the empirical results obtained in economic studies on training participation have become standard results. For the United Kingdom, Shields (1998), and for the United States, Altonji and Spletzer (1991), Lillard and Tan (1986), Lynch (1992) and Lynch and Black (1995) summarize most of these findings: training decreases with age, training participation is lower for females and people with children; qualifications have a positive effect on training participation; union members are more involved in training than non-union members. This paper tries to integrate concepts from the employability debate and the literature on training effects by looking at the impact of self-management on labor market outcomes while taking account of training investments.

Specifically, the relation between perceptions on self-management and labor market outcomes will be discussed. This type of research is important in the HRD-field since it enables the identification of factors that make people successful in their careers. If self-management turns out to be one of the key factors explaining career success, the stimulation of self-management might become one of the new tasks of modern HRD-professionals.

The central research question in this paper is: *In what way are self-management and labor market outcomes related?* The paper will be structured as follows. In the next section, the theoretical framework for the relation between self-management and labor market outcomes will be discussed. We then present our specific research questions. In the next two sections the data used are discussed and four empirical analyses are presented. The final section concludes and summarizes.

Theoretical Framework

Psychological Contract and Self-Management

Self-management is an important characteristic of a modern psychological contract, since it plays an eminent role in the discussion on 'modern' psychological contracts. Argyris introduced the psychological contract as a concept in 1960 and defined it as *an implicit agreement to respect each other's norms*. Later on, it was defined as a *product of mutual expectations that are implicit and unspoken, which may antedate the employment-organization relationship* (Levinson et al., 1962). In general, psychological contracts are considered to be dynamic in nature, implying that changes in individuals, organizations or in the broader context have a direct effect on the contract and its outcomes

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Many authors have noted that the psychological contract has changed considerably during the last decades (see e.g. Hall and Moss, 1998). Whereas the *traditional* psychological contract is concerned with trading job-security for loyalty, in a *modern* contract employees offer flexibility while firms offer possibilities to remain employable. An important element in the behavior of employees resulting from the psychological contract is the *degree of self-management*. The degree of self-management may be characterized by four career management competencies (Ball, 1997): a) optimizing the current situation, b) using career planning skills, c) engaging in personal development and d) balancing work and non-work activities. In this paper, the focus will be on b) and c). In a modern psychological contract, the individual perceptions on self-management determine the outcomes of the psychological contract. It may be expected that individuals with a higher degree of self-management will also be more successful on the labor market. In line with this theoretical assumption, employees' self-management perceptions influence labor market outcomes.

When the degree of self-management is discussed, often a distinction is made between a) self-management perceptions on initiative and b) self-management perceptions on responsibility. As a result, in the context of this paper, self-management consists of four elements. Training-related self-management initiative, training-related self-management responsibility, career-related self-management initiative and career-related self-management responsibility. (see also Delf and Smith, 1978). Training-related self-management initiative is defined as taking the lead in initiating training participation. Training-related self-management responsibility may be defined as the perceived obligation to be liable for training outcomes. Career-related self-management is defined as taking the lead in career development. Finally, career-related self-management is defined as the perceived obligation to be liable for the outcomes of career development. The relation of these four self-management elements to labor market outcomes is, however, not straightforward a priori. The goal of this paper is to investigate this issue from both a theoretical and an empirical perspective.

Labor Market Outcomes

Measuring someone's success on the labor market has long been an area of research that has been dominated by labor market economists. Starting with the pioneering work of Becker and Mincer in the 1960's, the concept of Human Capital was introduced. The main theme in their analysis is that the investment in human capital is comparable to the investment in physical capital (which had been studied extensively before), in the sense that an optimal decision for investment should be based on a careful examination of the returns and the costs of human capital investments. The relevant labor market outcome variable in most human capital literature is the wage. In countless articles that have appeared in the economics journals, economists have typically estimated wage equations, where human capital was related to different indicators for human capital investments, such as e.g. initial education, training and experience.

The classical human capital model takes wages as its sole explanatory variable. The assumption behind this is that wages are an unbiased estimator of productivity and that hence, all aspects of productivity are valued and can be summarized in a single indicator, the wage. Since many obstacles exist, the labor market is, however, far from perfect. There may be imperfect competition in markets for human capital, meaning that some types of human capital are only valuable in distinct situations, such as in the case of completely firm specific capital. But there may also be other reasons for a possible bias in the wage as an indicator for productivity. Firms may, for example, notice increases in workers' human capital with a lag, or they may wait rewarding it due to institutional constraints in wage-systems.

All this does not mean that wages are not suitable for analyzing labor market outcomes. We may continue to use the wage as an indicator for the valuation of human capital, but interpret it as the 'realized yields' from human capital investments. In addition, we may consider measures for the 'unrealized yields', which may be defined as an effect from human capital investments that is not yet reflected in the current wage. We consider two workers' labor market *potential* variables as indicators for the unrealized wage yields. The first one is the probability of finding a similar job outside the company one is currently working in (external labor market potential). The second indicator we use for labor market potential is the probability of keeping the current job (internal labor market potential). The emergence of the new psychological contract has also made these indicators for labor market success more important for employees themselves. Not only the success in the current job, which is traditionally measured by the wage, but also labor market potentials, which are important in times of (voluntary or forced) job changes, are important in a career.

A final labor market effect variable concerns bonuses: or sums of money that are rewarded for excellent work performance. These 'incidental monetary rewards' may be considered a somewhat more direct valuation of someone's performance than the wage, since wages are typically not instantaneously adjusted to reflect worker

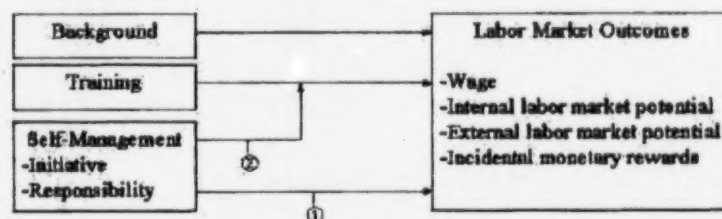
performance, due to, e.g. wage regulations or efficiency wage arguments. Bonuses, on the other hand, are not part of formal agreements and provide firms with a flexible instrument to reward outstanding productivity.

Model

When the relation between self-management and labor market outcomes is modeled, some potential problems arise. Firstly, labor market outcomes are influenced by many more factors than just self-management. For instance, level of education and the (past) participation in training courses may also have their impact on labor market outcomes. In addition, self-management may have a direct effect on labor market outcomes, but it may also affect these outcomes in an indirect manner. For instance, although some aspects of self-management do not have a direct effect on wages, these aspects may make training investments more or less productive, thereby exerting an indirect effect on wages. These considerations imply that the relation between self-management and labor market outcomes must be modeled using various background variables and interaction variables.

Bearing these considerations in mind, the relation between self-management and labor market outcomes may be modeled using the following model:

Figure 1. Research model for the relation between self-management and labor market outcomes



Relation (1) depicts the direct relation between self-management and labor market outcomes. Relation (2) maps the second possible relation under investigation. It is based on the idea that the degree of self-management may make training more or less productive. In the empirical analyses, we allow for this effect by using interaction variables for training and various aspects of self-management.

Research Questions

From the previous discussion, the following research questions arise:

1. To what degree does the wage depend on perceptions on self-management.
2. To what degree does internal labor market potential depend on perceptions on self-management.
3. To what degree does external labor market potential depend on perceptions on self-management.
4. To what degree do incidental monetary rewards depend on perceptions on self-management.

All four research questions refer to both the direct effect from self-management on labor market outcome variables and the possible indirect interaction effects with training participation.

Methodology

In this paper we use data from a survey we conducted in 1999 among employees of a large firm in the Netherlands financial services sector. The reason for using survey data is that we have not found other data sources that cover a wide array of human capital variables, labor market outcome, and self-management variables simultaneously. The company we investigated consists of 2 divisions. These divisions only differ in that they work for different parts of the insurance market. We have sampled 100 employees, 50 from each division, from a population of about 480 people using a stratified random sampling procedure. This group is relatively homogenous since they all have the same job description. As our objective was not to point out differences in occupations when it concerns labor market outcomes or self-management perceptions, we were able to keep the sample relatively small. The used set-up has the advantage that we are able to focus on the key concepts in the model without having to correct for differences in occupations or firm policies. We surveyed the workers using a face-to-face interview where the interviewers entered the answers directly in a computer that used automated survey software.

The group of workers that are central to our investigation are the so-called 'administrative employees'. Their job mainly consists of dealing with insurance benefit applications, determining the amount of money a client is entitled to, dealing with the clients incidentally, and keeping the files of clients up-to-date. The work is mostly done using highly advanced computer information systems. The work is organized in teams, usually consisting of about 20 people and a manager. We surveyed employees in 11 of those teams. Thanks to careful consultation with the company and potential respondents beforehand, we managed to obtain a response rate of 91%. A non-response analysis revealed that there are no serious reasons that the data may be blurred by selectivity. In addition to the data from the employee interviews we were able to use information from the firm's personnel information database, which contains many background variables.

Self-Management Variables

The employees were asked four self-management questions. The first two capture the perception on training-related self-management. Respondents were asked whether they felt that they are responsible for taking the initiative for their own training. They answered on a five-point scale, ranging from "completely agree" to "completely disagree". A similar question was asked for the perception concerning training-related self-management responsibility: employees were questioned whether they feel that they should bear the responsibility for their own training. The same methodology was followed for measuring the degree of career-related self-management. Employees were asked whether they responsible for taking the initiative for career development and whether they feel that they should bear the responsibility for their own career development. Table 1 shows that the majority of employees have a positive attitude towards the various aspects of self-management.

Table 1. *Self-management perceptions*

Self-Management Indicator	-- %	- %	+/- %	+ %	++ %	cases
Initiative for own training	1.0	11.3	7.2	64.9	15.5	97
Initiative for own career development	1.0	8.3	6.3	55.2	29.2	96
Responsibility for own training	1.0	12.1	5.1	69.7	12.1	99
Responsibility for own career development	0.0	10.1	8.1	64.6	17.2	99

-- = completely disagree; - = disagree; +/- = neutral; + = agree; ++ = completely agree

Training Variables

In most empirical work concerning the relation between training and labor market success is analyzed using the total number of training courses or total duration of training. Since different types of training may yield different effects, we distinguish between different types of training activities. People take part in training courses for different reasons. They may take a training course to make up for lost skills, be involved in training to improve career perspectives, or take courses simply because they have a preference for learning new things. In this paper, training is split up according to whether it is meant to combat skills obsolescence or undertaken for career reasons ('core' and 'career' training, Bartel, 1992). Training for career reasons is expected to have a positive effect on job prospects, since it adds to the stock of human capital available to workers. Training in order to combat skills obsolescence may have either a positive or a negative effect on job prospects. Low incidence of this type of training may imply low skills obsolescence in the worker involved, leading to better job prospects. On the other hand, a high incidence of this type of training may imply that the worker involved undertakes many activities to combat his skills obsolescence, which might also lead to better job prospects. Evidence elsewhere (Van Loo, 2002) shows that training undertaken to combat skills obsolescence has no effects on labor market outcomes. We therefore leave this type of training out of the analysis.

The second distinction we make is the division between firm specific and general training. We expect different effects of these two types of training since firm specific training is less valuable outside the firm one is working in, and is less likely to have positive effects on external labor market potentials. On the other hand, general training is useful in a great number of circumstances, and may therefore have stronger effects on external labor market potentials.

Finally, we distinguish between recent and non-recent training. It seems logical to assume that training courses taken recently yield smaller effects than training that was taken many years ago. We consider recent training to be all courses taken in the last five years. All courses before that are considered non-recent courses.

Table 2 presents the distribution of different types of training for the different categories distinguished. It shows that the majority of training courses is undertaken for skills obsolescence reasons.

Table 2. *The division of total training in the distinguished categories*

Type of training	%
Training courses meant to combat skills obsolescence	64
Specific career training courses: recent	7
Specific career training courses: non-recent	6
General career training courses: recent	7
General career training courses: non-recent	16

Labor Market Outcomes

In this paper, we use 4 different indicators for labor market outcomes: Wages, internal labor market potential, external labor market potential and incidental monetary rewards. Wages have been taken from the personnel information database, avoiding commonly reported measurement problems with this variable. Labor market outcomes are measured by using the answers on two questions in the survey that measure the self-rated career prospects. Both the probability to remain employed (internal) and the probability to find a new job (external) were measured on a 1-5 scale. Finally, the incidental monetary rewards have been measured by looking at the total amount of bonuses that employees have received over a two-year period (1998-1999).

Background variables

We include six background-variables in the analysis. Two commonly used indicators for human capital are tenure and educational background. In order to take account of a possible quadratic relation between tenure and labor market outcomes, we include tenure-squared as well. Another indicator for human capital is the quality of workers' competences. Since our database contains detailed information on employees and their managers, we are able to include a manager rating for the workers competences. In order to take account of possible gender effects, we include gender. Finally, a dummy for firm division captures possible differences between the two firm departments.

Results

In order to address our research questions, we estimated four labor market outcome equations, one for each labor market outcome variable. In a first step, all variables discussed above were included in the analysis. We find the following results: Tenure has a positive effect on wages, while tenure-squared exerts a negative influence. These results are consistent with those found in much of the human capital-wage literature. The effect from the manager's performance rating of employees is positive, indicating that employees with better abilities earn relatively more. The different types of training have no significant effects on wages. Training-related self-management responsibility, however, does have a positive effect, meaning that workers with a stronger tendency towards responsibility for their training related self-management earn more. Finally, two interaction terms have significant effect on wages: The interaction of general non-recent career training and training-related self-management responsibility has a negative effect on wages. On the other hand, the interaction effect of recent general career training and training-related self-management is positive.

External labor market potential is only significantly influenced by one variable in the full model: firm division. Internal labor market potential, on the other hand, is influenced by three: Gender (+), firm division (+) and non-recent general career training (-). The last results is surprising, since in general, investment in training is considered to have positive effects on human capital. The results here indicate that the acquisition of general human capital in the past does not have a positive effect, but rather punishes workers in the present. In the explanation of incidental monetary rewards, we find three significant effects. The managers' performance rating has an expected positive effect, firm division has a positive effect while recent general career training is rewarded positively as well.

Restricting the Estimations

A key problem in the estimations is that when some variables are strongly correlated, the estimation will fail to show significant results. In order to solve this, the four labor market outcome equations were re-estimated with fewer variables. We used a stepwise approach, where the least significant variables were subsequently deleted from the model. We stopped adjusting the equation once we found a result where all included variables were significant at a least the $\alpha=0.10$ level. We then obtain the equations shown in table 3.

Table 3. *Self-Management and Labor Market Outcomes, OLS-Estimation, Restricted Models*

	(ln) Wage	External LMP	Internal LMP	Incidental
Constant	7.871	3.157	6.681	-5235.39
Tenure	0.02770***	-0.04479***	-0.04872**	X
Tenure-squared	-0.0005147***	X	X	X
Gender (1=female)	X	X	X	X
Highest achieved educational level	X	X	-0.378**	X
Manager performance rating	0.02138***	X	X	670.57***
Firm division	X	-0.475**	0.931***	3344.37***
Career training, general, not recent	0.124**	X	-1.716*	X
Career training, specific, not recent	X	X	X	-8382.10**
Career training, general, recent	X	X	X	X
Career training, specific, recent	X	X	X	X
Training related self-management initiative (S1)	X	X	-0.382**	X
Career related self-management initiative (S2)	X	0.229*	X	X
Training related self-management responsibility (S3)	0.02484**	X	X	X
Career related self-management responsibility (S4)	X	-0.260*	X	X
Career training, general, not recent * S1	X	X	X	X
Career training, general, not recent * S2	X	X	X	638.43***
Career training, general, not recent * S3	-0.02649*	X	0.463**	-610.13**
Career training, general, not recent * S4	X	X	X	X
Career training, specific, not recent * S1	X	X	X	X
Career training, specific, not recent * S2	X	X	X	X
Career training, specific, not recent * S3	X	X	X	2458.12**
Career training, specific, not recent * S4	X	X	X	X
Career training, general, recent * S1	X	X	X	X
Career training, general, recent * S2	X	X	X	X
Career training, general, recent * S3	X	-0.413*	X	X
Career training, general, recent * S4	X	0.520**	X	X
Career training, specific, recent * S1	X	X	X	X
Career training, specific, recent * S2	X	X	X	X
Career training, specific, recent * S3	X	X	X	-237.14**
Career training, specific, recent * S4	X	X	X	X
Number of cases	94	94	92	94
R-squared	0.847	0.412	0.189	0.568

*=significant with $\alpha=0.10$, **=significant with $\alpha=0.05$, ***=significant with $\alpha=0.01$, X=variable not included

The re-estimated labor market outcome equations show the following: For wages, tenure, tenure-squared, and the manager performance rating have the expected effects. General non-recent career training has a strong positive effect. Training-related self-management responsibility also has a positive effect. Finally, the interaction between general non-recent career training and training-related self-management is negative, indicating that the combination of this type of training with a strong sense of responsibility concerning training has a negative wage effect.

Interestingly, tenure has a negative effect on both external and internal labor market potentials. This might be due an experience of concentration, which occurs when people work the same job for a prolonged period of time. The highest achieved educational level has a negative impact on internal labor market potentials, which is somewhat surprising. Firm division has a negative effect on external labor market potentials and a positive effect on internal labor market potential, indicating considerable differences between the two firm divisions. When it concerns the

self-management variables, we find a negative effect from training-related self-management initiative on internal labor market potentials, a positive effect from career-related self-management initiative on external labor market potentials and a negative effect from career-related self-management responsibility on external labor market potentials. The interaction of recent general training and training-related self-management responsibility has a negative impact while the interaction of this type of training and career-related self-management responsibility has a positive impact on external labor market potentials. Finally, the interaction of non-recent general career training and training-related self-management responsibility has a positive effect on internal labor market potentials.

When we turn to the final column in table 3, it comes apparent that the manager performance rating has a positive effect on incidental monetary rewards (bonuses). Firm division has a positive effect as well. It is surprising that specific non-recent career training has a strong negative effect on bonuses. It might be that the weakest group of workers is more involved in this type of training than their more able colleagues, implying that being involved in such a training no longer signals human capital acquisition but rather employee weakness. Finally, four interaction terms have significant effects. The combination of training-related self-management responsibility and both non-recent general and recent specific training courses both have significant negative effects on bonuses. Non-recent general and non-recent specific career training combined with a high degree of career-related self-management initiative and training-related self-management responsibility respectively have a positive impact on the incidental monetary rewards.

Summarizing, we find that wages are influenced positively by both general non-recent career training and training related self-management responsibility. The interaction of these variables, however, has a negative impact on wages, suggesting a 'declining returns' mechanism. For external labor market potentials, we find that career related self-management initiative has a positive influence, while career-related self-management responsibility has a negative impact. The latter result might be due to the fact that employees with a high feeling of responsibility only take career steps that they are totally comfortable with, resulting in a somewhat less favorable external labor market potential. The interaction terms show opposite signs, and are somewhat hard to interpret. When internal labor market potential is considered, the analysis shows that it is influenced negatively by training-related self-management initiative. This type of self-management is not rewarded in terms of internal labor market potential. The interaction of general non-recent career training and training-related self-management responsibility, on the other hand, does have a positive impact. This implies that those employees that were involved in this type of training and also have a high degree of self-management responsibility have better internal labor market prospects. Finally, non-recent specific career training has a negative impact on bonuses. This implies that the firm does not perceive this type of as a human capital investment, but rather as a signal for weak employees. Four interaction variables also have significant effects, but the interpretation of these results is difficult.

Discussion and Conclusion

The emergence of new psychological contracts have resulted in a shift from the traditional organizational career to what has been termed the 'protean career'. The need for a different relation between workers and firms has been created by various developments taking place in modern societies: technological innovations, organizational developments, quality management and increased competition. As a result, an employability debate has emerged wherein the need for individual worker flexibility is often stressed. In the economically inspired training literature, the need for continuing updating of skills is the main issue. This paper has attempted to integrate concepts from the employability debate and the literature on training effects by looking at the impact of self-management on labor market outcomes while taking account of training investments.

A model has been developed that relates self-management perceptions, training participation and labor market outcomes. The model allows for both direct effects of self-management on labor market outcomes as well as indirect interaction effects with training participation. From survey data, we find that the different indicators for labor market outcomes are influenced by different explanatory variables. The results also lend support to the existence of direct and indirect effects of self-management on labor market outcomes. Not all found effects are, however, intuitively predictable. In this respect, e.g., the negative effect of general non-recent career training on internal career potential is quite puzzling. It could be due to the fact that a worker who is involved in many general career courses signals to the organization that he is willing to leave, which in turn makes organizations restrict further career possibilities. On the other hand, however, it could be that workers that take general career courses are candidates for dismissal, which causes a lower internal labor market potential. Among other issues, this question of causality needs further attention. Other possible future research should focus on validating the results using broader populations. Although the analyses show that self-management matters for labor market outcomes, the results found here hold for one

company only. It would be quite attractive to be able to generalize the results, since understanding the impact of self-management can improve both HRD theory and practice.

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